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Sunder Rathnavelu Raj

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WILLIAM L. PARADICE, III
4880 STEVENS CREEK BOULEVARD
SUITE 201
SAN JOSE, CA 95129

EXAMINER

PYO, MONICA M

ART UNIT

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SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/700,722	Applicant(s) RAJ, SUNDER RATHNAVELU	
	Examiner Monica M. Pyo	Art Unit 2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29,31-33 and 45-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29,31-33 and 45-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/05, 11/03, 11/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to the Election/Restriction filed on 10/4/2006.
Applicant elected Group I, claims 1-29, 31-33 and 45-49. Claims 1-29, 31-33 and 45-49 are present for examination and claims 1, 23, 31 and 45 are independent claims. Claims 1-49 are currently pending.
2. The Group II, claims 30, 34-44 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b) as being drawn to a non-elected.
3. Claims 1-29, 31-33 and 45-49 are rejected.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 11/3/2003, 11/20/2003 and 7/18/2003 was filed and considered by the examiner.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 6-8, 11-14, 19-22, 31 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2006/0259508 by Sikdar et al. (hereinafter Sikdar) in view of U.S. Patent No. 7,134,143 issued to Stellenberg et al. (hereinafter Stellenberg).

Regarding claim 1, Sikdar discloses a method, comprising:

A). receiving a text string having a plurality of characters, as a search string with characters (Sikdar: pg. 2, [0017]; pg. 3, [0033]); and

B). performing of a database wherein the state machine comprises a ternary content addressable memory (TCAM) and wherein the performing comprises comparing a state and one of the plurality of characters with contents of a state field and a character field, respectively, stored in the TCAM, as a TCAM and comparing between the state table and a character (Sikdar: pg. 1, [0010]; pg. 6, [0069]).

Sikdar does not explicitly disclose:

B). an unanchored search of a stored patterns matching one or more characters of the text string using a state machine,

However, Stellenberg discloses:

B). an unanchored search of a stored patterns matching one or more characters of the text string using a state machine, as an unanchored search of pattern matching (Stellenberg: col. 2, lns. 41-45; col. 9, lns. 36-62).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the unanchored/anchored searching of Stellenberg in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the Stellenberg's teaching of the unanchored/anchored searching in the Sikdar's teaching of character pattern matching sequence to enhance reducing the field of library patterns under consideration (Stellenberg: col. 2, lns. 59-67).

Regarding claim 2, Sikdar and Stellenberg disclose the method wherein the state is a next state (Sikdar: pg. 2, [0029]; fig. 4).

Regarding claim 3, Sikdar and Stellenberg disclose the method further comprising receiving the next state from an associated memory (Sikdar: pg. 2, [0028, 0029]) and (Stellenberg: col. 9, lns. 36-62)..

Regarding claim 4, Sikdar and Stellenberg disclose the method wherein the state is an idle state (Stellenberg: pg. 3, [0043, 0044]; fig. 8).

Regarding claim 6, Sikdar and Stellenberg disclose the method wherein performing the unanchored search comprises:

traversing the state machine with the text string, wherein the state machine is traversed with one of the plurality of characters at a time (Stellenberg: col. 9, lns. 36-63); and

transitioning a state of the state machine based on a stored next state (Sikdar: pg. 1, [0009]; pg. 2, [0029]).

Regarding claim 7, Sikdar and Stellenberg disclose the method further comprising encoding the next state in a lookup table (Sikdar: pg. 1, [0010]; pg. 2, [0029]) and (Stellenberg: col. 4, lns. 7-17; col. 20, lns. 36-49).

Regarding claim 8, Sikdar and Stellenberg disclose the method wherein the plurality of characters comprises valid and invalid characters and wherein encoding comprises encoding the next state in the state machine if a valid character is received in the text string (Stellenberg: col. 4, lns. 7-17; col. 5, lns. 35-54; col. 9, lns. 36-63; col. 20, lns. 36-49).

Regarding claim 9, Sikdar and Stellenberg disclose the method wherein transitioning further comprises transitioning the state machine to a default state if an invalid character is received in the text string (Sikdar: pg. 1, [0006, 0009]; pg. 2, [0029]).

Regarding claim 10, Sikdar and Stellenberg disclose the method wherein the transitioning is stopped when an invalid character is received (Sikdar: pg. 4, [0051-0052]).

Regarding claim 11, Sikdar and Stellenberg disclose the method wherein performing the unanchored search comprises searching for an exact match of one of the stored patterns (Stellenberg: col. 5, lns. 356-54; col. 9, lns. 36-63).

Regarding claim 12, Sikdar and Stellenberg disclose the method wherein performing the unanchored search comprises searching for an inexact match of one of the stored patterns (Stellenberg: col. 5, lns. 35-54; col. 9, lns. 36-63).

Regarding claims 13, Sikdar and Stellenberg disclose the method wherein the TCAM has a first width and the text string has a second width greater than the first width of the TCAM (Sikdar: pg. 6, [0069]) and (Stellenberg: col. 21, lns. 56-col. 22, lns. 3).

Regarding claim 14, Sikdar and Stellenberg disclose the method wherein each of the plurality of characters has a case, and wherein performing the unanchored search further comprises performing the unanchored search insensitive to the case of one or more of the plurality of characters (Sikdear: col. 9, lns. 36-62) and (Stellenberg: col. 9, lns. 36-62; col. 17, lns. 31-39).

Regarding claim 19, Sikdar and Stellenberg disclose the method wherein performing the unanchored search comprises:

comparing, in parallel, N number of the characters with the content of the state field (Stellenberg: col. 4, lns. 7-36).

Regarding claim 20, Sikdar and Stellenberg disclose the method wherein the performing further comprises converging all branches of the state machine, for a given stored pattern, to a single next state when a first number of the characters are matched to the contents of a state field to all state transitions of the branches (Sikdar: pg. 1, [0009]; pg. 2, lns. 0029]; pg. 3, [0035]).

Regarding claim 21, Sikdar and Stellenberg disclose the method wherein the single next state is an earlier possible next state for at least one of the branches and wherein the converging comprises

transitioning at least one of the branches to the earlier possible next state (Sikdar: pg. 2, 0013]; pg. 3, [0035, 0044]).

Regarding claim 22, Sikdar and Stellenberg disclose the method further comprising:
storing the characters in a first-in-first-out (FIFO) storage element having a plurality of positions (Sikdar: pg. 3, [0042]; pg. 5, [0060]) and (Stellenberg: col. 4, lns. 7-17);
positioning a read pointer at a first position (Sikdar: pg. 3, [0042]; and
adjusting the read pointer to a second position by an amount equal to N minus 1 (Sikdar: pg. 3, [0042]; pg. 4, [0053]) and (Stellenberg: col. 8, lns. 64-67).

Regarding claim 31, Sikdar discloses a method, comprising:

A). receiving a text string having a plurality of characters, as a search string with characters (Sikdar: pg. 2, [0017]; pg. 3, [0033]); and

B). performing a search of a database of a stored pattern matching one or more characters of the text string using a state machine, wherein the state machine comprises a ternary content addressable memory (TCAM) and wherein the performing comprises comparing a state and one of the plurality of characters with the contents of a state field and a character field, respectively, stored in the TCAM, as a TCAM and comparing between the state table and a character (Sikdar: pg. 1, [0010]; pg. 6, [0069]).

Sikdar does not explicitly disclose:

B). wherein each of the plurality of characters has a case, and wherein the search is performed insensitive to the case.

However, Stellenberg discloses:

B). wherein each of the plurality of characters has a case, and wherein the search is performed insensitive to the case, as a case insensitive data (Stellenberg: col. 9, lns. 36-62; col. 17, lns. 31-39).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the unanchored/anchored searching on case insensitive data of Stellenberg in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the Stellenberg's teaching of the unanchored/anchored searching in the Sikdar's teaching of character pattern matching sequence to enhance reducing the field of library patterns under consideration (Stellenberg: col. 2, lns. 59-67).

Regarding claim 45, Sikdar discloses a string search apparatus, comprising:

B). a pattern and state database including a ternary content addressable memory (TCAM) coupled to an associated memory, wherein the pattern and state database is operable to perform in the TCAM and associated memory, as a TCAM and comparing between the state table and a character (Sikdar: pg. 1, [0010]; pg. 6, [0069]).

Sikdar does not explicitly disclose:

A). control circuitry to receive a text string having a plurality of characters; and

B). an unanchored search of the plurality of characters with patterns stored.

However, Stellenberg discloses:

- A). **control circuitry to receive a text string having a plurality of characters**, as a class identifier (CID) functions (Stellenberg: col. 17, lns. 55-col. 18, lns. 8); and
- B). **an unanchored search of the plurality of characters with patterns stored**, as an unanchored search of pattern matching (Stellenberg: col. 9, lns. 36-62).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the unanchored/anchored searching of Stellenberg in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the Stellenberg's teaching of the unanchored/anchored searching in the Sikdar's teaching of character pattern matching sequence to enhance reducing the field of library patterns under consideration (Stellenberg: col. 2, lns. 59-67).

Regarding claim 46, Sikdar and Stellenberg disclose the apparatus further comprising a processor coupled to the pattern and state database (Stellenberg: col. 17, lns. 55-col. 18, lns. 8).

Regarding claim 47, Sikdar and Stellenberg disclose the apparatus wherein the control circuitry comprises:

- a first-in-first-out (FIFO) storage element (Sikdar: pg. 5, [0060]); and
- a register coupled to the FIFO storage element and the TCAM (Sikdar: pg. 5, [0060]; pg. 6, [0069]) .

7. Claims 5 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikdar in view of Stellenberg, and further in view of U.S. Patent Application Publication No. 2004/0177319 by Horn (hereinafter Horn).

Regarding claims 5 and 49, Sikdar and Stellenberg disclose the method wherein the TCAM implements.

Sikdar and Stellenberg do not disclose:

an Aho-Corasick algorithm.

However, Horn discloses:

an Aho-Corasick algorithm (Horn: pg. 14, [0227]).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the Aho-Corasick algorithm of Horn in the unanchored/anchored searching of Stellenberg, and in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the Horn's Aho-Corasick algorithm in the Stellenberg's teaching of the unanchored/anchored searching, and in the Sikdar's teaching of character pattern matching sequence to perform an efficient text search (Horn: pg. 1, [0004]).

8. Claims 15-16 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikdar in view of Stellenberg, and further in view of U.S. Patent No. 5,497,488 issued to Akizawa et al. (hereinafter Akizawa).

Regarding claims 15 and 32, Sikdar and Stellenberg disclose the method wherein the text string is encoded in a format having a first plurality of bits, wherein one bit of the first plurality of bits corresponds to the case, wherein the contents of the state field has a second plurality of bits and wherein performing the search insensitive to the case comprises (Sikdar col. 9, lns. 36-62) and (Stellenberg: col. 9, lns. 36-62; col. 17, lns. 31-39; col. 20, lns. 36-49; col. 21, lns. 30-55):

to the case (Stellenberg: col. 17, lns. 31-39); and

comparing the first plurality of bits with the second plurality of bits (Stellenberg: col. 19, lns. 3-20).

Sikdar and Stellenberg do not disclose:

masking out the one bit corresponding.

However, Akizawa discloses:

masking out the one bit corresponding (Akizawa: col. 7, lns. 20-35).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the Akizawa's teaching of masking each bit of data in the unanchored/anchored searching of Stellenberg, and in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the mask registration of Akizawa in the Stellenberg's teaching of the unanchored/anchored searching, and in the Sikdar's teaching of character pattern matching sequence to search of text data in a high-speed and to make a data in units of byte (Akizawa: col. 1, lns. 32-43).

Regarding claims 16 and 33, Sikdar and Stellenberg and Akizawa disclose the method wherein performing the search insensitive to the case further comprises transforming the characters of the text string from a first code to a second code, the second code having a bit unused in the comparing (Stellenberg: col. 16, lns. 51-67; col. 17, lns. 31-39).

9. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikdar in view of Stellenberg as applied to claims 1-4, 6-8, 11-14, 19-22, 31 and 45-47 above, and further in view of U.S. Patent No. 6,785,677 issued to Fritchman (hereinafter Fritchman).

Regarding claim 17, Sikdar and Stellenberg disclose the method wherein the text string has zero or more wildcard characters, zero or more prefix characters preceding the wildcard characters and zero or more suffix characters succeeding the wildcard characters, and wherein performing the unanchored search comprises:

searching the database for a first pattern matching (Sikdar: pg. 1, [0010]; pg. 6, [0069]);
and

searching the database for a second pattern matching (Sikdar: pg. 1, [0010]; pg. 6, [0069]).

Sikdar and Stellenberg do not explicitly disclose:

the prefix characters and the suffix characters.

However, Fritchman discloses:

the prefix characters and the suffix characters (Fritchman: col. 5, lns. 51-53 and 64-67).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the prefix, suffix and the wildcard character of Fritchman in the

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unanchored/anchored searching of Stellenberg, and in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the Fritchman's string matching algorithm using the prefix, suffix and the wildcard character in the Stellenberg's teaching of the unanchored/anchored searching, and in the Sikdar's teaching of character pattern matching sequence to improve performance of executing pattern matching queries (Fritchman: col. 1, lns. 8-29).

Regarding claim 18, Sikdar and Stellenberg and Fritchman disclose the method wherein performing the unanchored search further comprises creating a count that equals a number of the suffix characters plus a number of the wildcard characters (Stellenberg: col. 2, lns. 41-45; col. 9, lns. 36-62) and (Fritchman: col. 5, lns. 51-53 and 64-67).

10. Claims 23-24 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikdar in view of Fritchman..

Regarding claim 23, Sikdar disclose a method, comprising:

- A). **receiving a text string**, as a search string with characters (Sikdar: pg. 2, [0017]; pg. 3, [0033]);
- B). **performing a first search on a ternary content addressable memory (TCAM) for**, as a TCAM and comparing between the state table and a character (Sikdar: pg. 1, [0010]; pg. 6, [0069]); **and**

C). **performing a second search of the TCAM for, as a TCAM and comparing between the state table and a character (Sikdar: pg. 1, [0010]; pg. 6, [0069]).**

Sikdar does not explicitly disclose:

A). **having a plurality of characters including a first number of prefix characters, a second number of wildcard characters succeeding the prefix characters, and a third number of suffix characters succeeding the wildcard characters**

B). **a first stored pattern matching the prefix characters,**

C). **a second stored pattern matching the suffix characters**

However, Fritchman discloses:

A). **having a plurality of characters including a first number of prefix characters, a second number of wildcard characters succeeding the prefix characters, and a third number of suffix characters succeeding the wildcard characters, as a prefix, a wildcard and a suffix character in a string (Fritchman: col. 7, lns. 65-col. 8, lns. 37).**

B). **a first stored pattern matching the prefix characters, as a prefix character in a string (Fritchman: col. 8, lns. 38-51).**

C). **a second stored pattern matching the suffix characters, as a suffix character in a string (Fritchman: col. 8, lns. 25-37).**

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the prefix, suffix and the wildcard character of Fritchman in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the Fritchman's string matching algorithm using the prefix, suffix and the wildcard

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character in the Sikdar's teaching of character pattern matching sequence to improve performance of executing pattern matching queries (Fritchman: col. 1, lns. 8-29).

Regarding claim 24, Sikdar and Fritchman disclose the method further comprising creating a count that equals a number of the suffix characters plus a number of the wildcard characters (Fritchman: col. 8, lns. 30-67).

Regarding claim 28, Sikdar and Fritchman disclose the method further comprising:
returning a match result when the first stored pattern matches the prefix (Fritchman: col. 3, lns. 35-63; col. 5, lns. 21-22)

characters, the second stored pattern matches the suffix characters, and second number of wildcard characters is fixed (Fritchman: col. 3, lns. 35-63).

Regarding claim 29, Sikdar and Fritchman disclose the method further comprising:
storing a count value that equals a number of the suffix characters plus the fixed second number of the wildcard characters (Sikdar: pg. 1, [0010]; pg. 6, [0069]) and (Fritchman: col. 3, lns. 35-63); and

maintaining a count of incoming characters of the text string after receiving the prefix characters (Fritchman: col. 5, lns. 21-22; col. 8, lns. 30-67); and

returning the match result when the maintained count is equal to the stored count value (Fritchman: col. 8, lns. 30-67).

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11. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikdar in view of Fritchman, and further in view of Stellenberg.

Regarding claim 25, Sikdar and Fritchman do not explicitly disclose the method wherein each of the plurality of characters has a case, and wherein the first and second searches are insensitive to the case.

However, Stellenberg discloses: the method wherein each of the plurality of characters has a case, and wherein the first and second searches are insensitive to the case (Stellenberg: col. 17, lns. 31-39).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the unanchored/anchored searching of Stellenberg in the prefix, suffix and the wildcard character of Fritchman, and in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the Stellenberg's teaching of the unanchored/anchored searching in the Fritchman's string matching algorithm using the prefix, suffix and the wildcard character, and in the Sikdar's teaching of character pattern matching sequence to enhance reducing the field of library patterns under consideration (Stellenberg: col. 2, lns. 59-67).

Regarding claims 26, Sikdar and Fritchman and Stellenberg disclose the method wherein the TCAM has a first width and the text string has a second width greater than the first width (Sikdar: pg. 6, [0069]) and (Stellenberg: col. 21, lns. 56-col. 22, lns. 3).

Regarding claim 27, Sikdar and Fritchman and Stellenberg disclose the method further comprising:

returning a match result when the first stored pattern matches the prefix characters, the second stored pattern matches the suffix characters, and second number of wildcard characters is variable (Fritchman: col. 3, lns. 35-63; col. 8, lns. 30-67).

12. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sikdar in view of Stellenberg, and further in view of U.S. Patent No. 5,712,971 issued to Stanfill et al. (hereinafter Stanfill).

Regarding claim 48, Sikdar and Stellenberg disclose the apparatus wherein the control circuitry further comprises a circuit coupled to the FIFO storage element (Sikdar: pg. 2-3, [0031, 0032]; pg. 5, [0060]) and (Stellenberg: col. 17, lns. 55-col. 18, lns. 8).

Sikdar and Stellenberg do not explicitly disclose: a rollback

However, Stanfill discloses: a rollback (Stanfill: col. 10, lns. 55-67).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the rollback method of Stanfill in the unanchored/anchored searching of Stellenberg, and in the character patterns for matching sequences of Sikdar. Skilled artisan would have been motivated to combine the Stanfill's teaching of the rollback command in the Stellenberg's teaching of the unanchored/anchored searching, and in the Sikdar's teaching of character pattern matching sequence to be able to undo the last operation (Stanfill: col. 4, lns. 10-26).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon-Fri 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica M Pyo
Examiner
Art Unit 2161

mp
12/24/06


HOSAIN ALAM
SUPERVISORY PATENT EXAMINER